CLAIMS

1. A nickel alloy composition comprising about 4 to about 8 wt% Cr, about 5 to about 6.5 wt% Al, about 2 to about 6 wt% Co, about 4 to about 8 wt% Ta, about 3 to about 5 wt% Re, about 0.1 to about 0.5 wt% Hf, about 0.04 to about 0.1 wt% C, about 0.05 to about 0.3 wt% Si, and about 0.003 to about 0.01 wt% B, with at least the major part of the balance being nickel.

2. A nickel alloy composition as claimed in claim 1, substantially excluding at least one of Mo, Ti and V.

3. A nickel alloy composition as claimed in claim 1, substantially excluding all of Mo, Ti, V and Nb.

4. A nickel alloy composition as claimed in claim 1, 2 or 3, further including one or more element selected from up to about 5 wt% W, up to about 5 wt% Pt, about 0.003 to about 0.008 wt% La, and about 0.003 to about 0.008 wt% Y.

5. A nickel alloy composition as claimed in claim 1, 2, 3 or 4, wherein the composition consists essentially of Cr, Al, Co, Ta, Re, Hf, C, Si, B and optionally one or more of W, Pt, La and Y, in the amounts stated in the said preceding claim, the balance being nickel.

6. A nickel alloy composition, substantially as defined by the nominal composition: Cr 4.5 wt%; Al 6 wt%; Co 4 wt%; Ta 6 wt%; Re 4 wt%; Hf 0.15 wt%; C 0.05 wt%; Si 0.1 wt%; B 0.005 wt%; W 2 wt%; La 0.003-0.005 wt%; and Y 0.003-0.005 wt%; the remainder being nickel.

7. A method for forming a blade tip of a gas turbine blade, particularly a blade tip of a gas turbine

propulsion engine, the method comprising applying a nickel alloy composition, comprising about 4 to about 8 wt% Cr, about 5 to about 6.5 wt% Al, about 2 to about 6 wt% Co, about 4 to about 8 wt% Ta, about 3 to about 5 wt% Re, about 0.1 to about 0.5 wt% Hf, about 0.04 to about 0.1 wt% C, about 0.05 to about 0.3 wt% Si, and about 0.003 to about 0.01 wt% B, with at least the major part of the balance being nickel, to the tip of the gas turbine blade.

8. A method for repairing a metal article, the method comprising applying a nickel alloy composition, comprising about 4 to about 8 wt% Cr, about 5 to about 6.5 wt% Al, about 2 to about 6 wt% Co, about 4 to about 8 wt% Ta, about 3 to about 5 wt% Re, about 0.1 to about 0.5 wt% Hf, about 0.04 to about 0.1 wt% C, about 0.05 to about 0.3 wt% Si, and about 0.003 to about 0.01 wt% B, with at least the major part of the balance being nickel, to a damaged portion of the metal article to repair the same.

9. A method as claimed in claim 8, wherein the metal article is a cast metal turbine component.

10. A method as claimed in claim 9, wherein the cast metal turbine component is a turbine blade, a turbine shroud segment or a nozzle guide vane.

11. A method as claimed in claim 7 or 8, wherein the application of the nickel alloy composition is carried out by a laser cladding or weld deposition process.

12. A method for forming a blade tip or blade tip structure of a gas turbine blade, or for forming a repair structure to repair a cast metal turbine component, the method comprising laser cladding or weld

depositing a nickel alloy composition, comprising about 4 to about 8 wt% Cr, about 5 to about 6.5 wt% Al, about 2 to about 6 wt% Co, about 4 to about 8 wt% Ta, about 3 to about 5 wt% Re, about 0.1 to about 0.5 wt% Hf, about 0.04 to about 0.1 wt% C, about 0.05 to about 0.3 wt% Si, and about 0.003 to about 0.01 wt% B, with at least the major part of the balance being nickel, to the tip of the gas turbine blade or to the cast metal turbine component, to a depth in excess of the desired blade tip or structure, and subsequently machining the nickel alloy composition to reduce the depth thereof to form the desired blade tip or structure.

13. A method as claimed in claim 12, wherein the nickel alloy composition is applied by laser cladding.

14. A method as claimed in claim 12 or 13, wherein the blade tip comprises a squealer.